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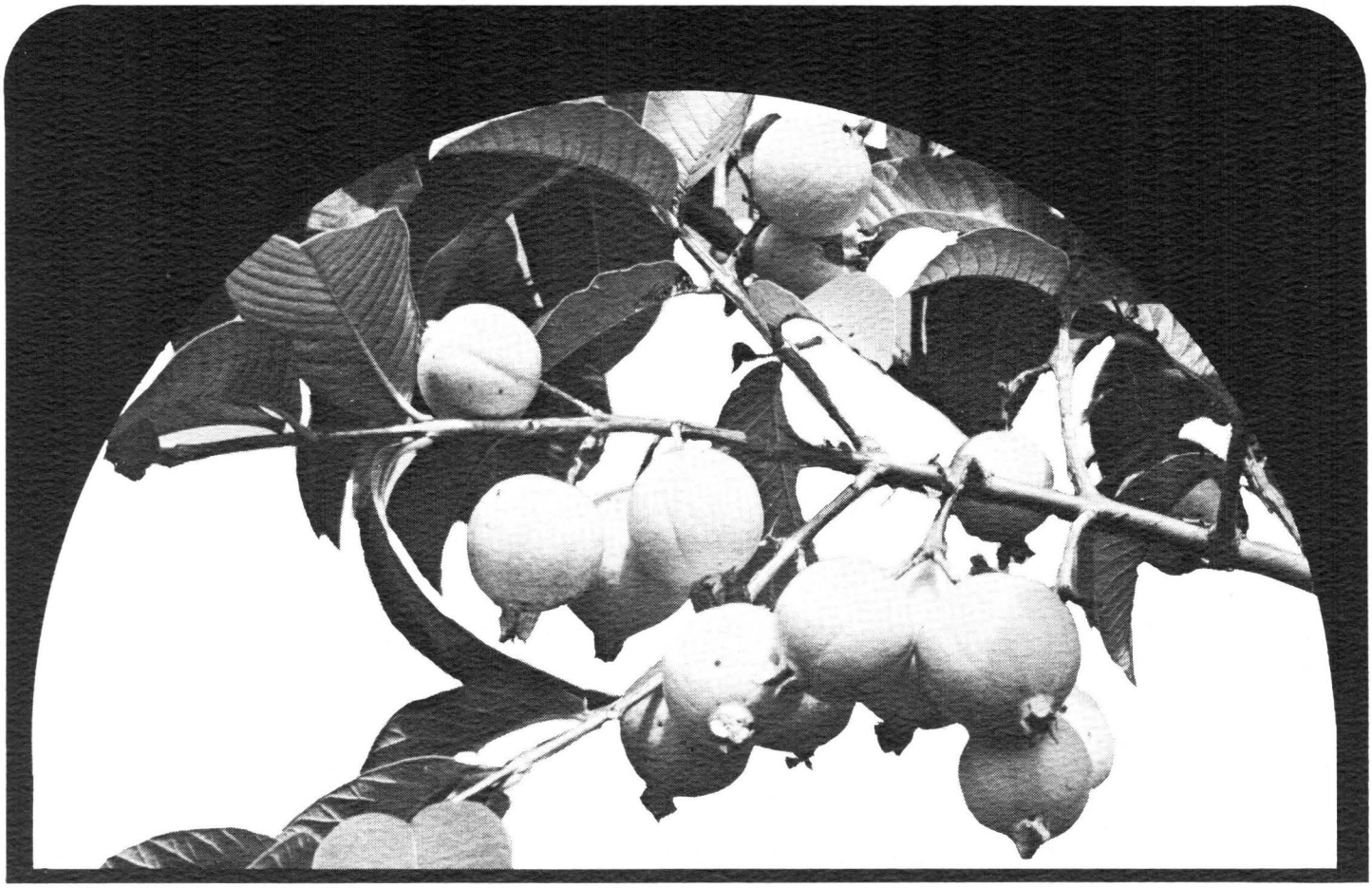

CHARACTERISTICS OF CONSUMER DEMAND FOR GUAVA NECTAR IN METROPOLITAN HONOLULU

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Departmental Paper 59

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INTRODUCTION

Recent rapid expansion in plantings of improved varieties of guavas in Hawaii has caused an urgent need for more information on consumer demand for guava products. The expansion in orchard production has taken place during an uneven decline in the quantity processed in Hawaii during the 9-year period from 1969 through 1977 (Figure 1). The increasing output from orchards has tended to replace rather than supplement guavas from wild sources. In 1969, 88 percent of the 5,989,000 pounds processed was from wild guava and only 12 percent or 735,000 pounds was from orchards (7). Of the substantially reduced quantity of 3,872,000 pounds processed in 1977, approximately 55 percent or 2,143,000 pounds came from orchards.

A total of 666 acres of domestic guava orchards was reported in Statistics of Hawaiian Agriculture 1977 (6). Additional plantings in progress or planned for the near future are estimated by the writer at 1,700 acres. With an expected yield at maturity of 30,000 pounds per acre, the output from 666 acres would amount to 19,980,000 pounds or 3.4 times the quantity processed in 1976, and 5.2 times the quantity processed in 1977. An acreage of 2,366 (666 in 1977 + 1,700 planned) would yield 70,980,000 pounds of fruit or twelve times the amount processed in 1976.

Since the Hawaii market for guava products is already developed, most of the output from new plantings must either be exported or replace wild guava. The 5,920,000 pounds of wild guava processed in 1976 would have required only 197 acres at a mature yield of 30,000 pounds per acre. A 1973 controlled market test in Sacramento, California, indicated that only 11,728,000 pounds would have been required, at the test rate of sale, to supply the entire U.S. Mainland. This would require only 586 acres at 30,000 pounds of fruit per acre (18).

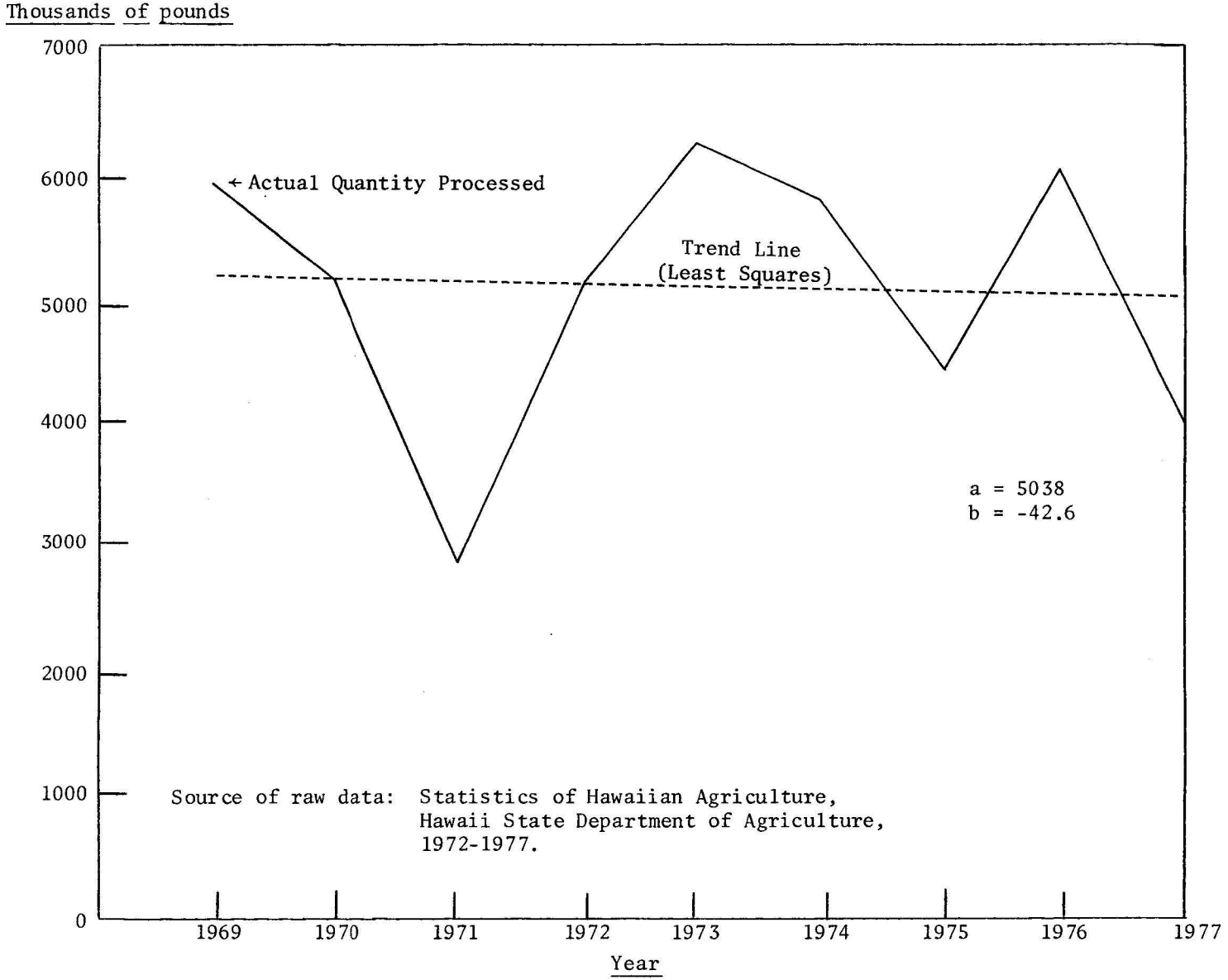
In view of these findings, it is readily apparent that a better understanding of the market and a comprehensive program of market development are imperative.

PURPOSE OF THE STUDY

The primary objectives of this study are to determine consumer buying habits and consumption patterns for guava products as related to demographic characteristics of the population, namely: income, education, ethnic background, and length of residence in Hawaii.

The findings are designed: (1) to serve as a guide to market development for guava products in Hawaii, the U.S. Mainland and in foreign countries, and (2) to provide a more precise indication of the competitive position between guava and competing products.

Figure 1. Trend in Quantity of Guavas Processed in Hawaii, 1969-77



METHODOLOGY

A sample of 650 names was selected through systematic random sampling from the Oahu (metropolitan Honolulu) telephone directory for telephone interviews. An alternate name was selected for each name in the sample and interviewed in the event of continued lack of response in calling the original number. The final sample consisted of 616 completed questionnaires obtained during September and October, 1975. The questionnaire was pre-tested on a sample of 50 households.

Inasmuch as some questions in the questionnaire were expected to indicate answers with percentages of 50, a proportional value of 0.5, which is the maximum limitation, was used. At a 95 percent confidence level and a proportional value of 0.5, a sample size of 600 households is subject to a percentage error of 4 percent. The percentage error would, of course, be much greater for sub-samples, which should be kept in mind in interpreting the findings. Only those survey questions which yielded responses significant to the identification of consumer demand for guava nectar are summarized in this report.

FAMILIARITY WITH AND CONSUMPTION OF GUAVA NECTARS

The study revealed that 85 percent of the households in the sample were aware of the availability of single strength guava nectar in cans, 78 percent had tried it, and 71 percent had bought it (Table 1).

With respect to guava nectar in dairy cartons, 83 percent of the respondents were aware of its availability, 72 percent had tried it, and 68 percent had bought it.

Only 70 percent of the respondents were aware of the availability of frozen guava nectar base, 58 percent had tried it, and 55 percent had bought it.

CONSUMPTION AND LENGTH OF RESIDENCE

The most important variable relating to the consumption of guava nectar was length of residence in Hawaii (Table 1). Familiarity, consumption, and purchases of guava nectar increased in relation to the number of years respondents had lived in Hawaii for all three forms of guava nectar, but the correlation was most dramatic for frozen guava nectar base. The percentage of all respondents who had purchased single strength guava nectar increased from 50 percent for those who had resided in Hawaii for 1 to 2 years to 82 percent for those born in Hawaii. Purchases by residents of less than one year slightly exceeded those of residents of 1 to 2 years, but these data are not included in the narrative because of the small sub-sample of residents of

Table 1. Percentage of Honolulu Households Familiar With, Had Tried, and Had Purchased Guava Nectar, By Length of Residence in Hawaii

Purchase Category and Form of Guava Nectar	Less Than One Year			One to Two Years			3 to 5 Years			6 Years or More			Born in Hawaii			All Groups		
	Familiar	Tried	Bought	Familiar	Tried	Bought	Familiar	Tried	Bought	Familiar	Tried	Bought	Familiar	Tried	Bought	Familiar	Tried	Bought
	(Percent)			(Percent)			(Percent)			(Percent)			(Percent)			(Percent)		
Guava Nectar Buyers																		
Single Strength	84	68	68	84	76	73	90	82	78	90	81	78	93	91	90	91	86	84
Dairy Cartons	84	68	68	87	70	70	88	74	74	89	78	73	90	84	83	89	80	79
Frozen	53	37	37	60	39	39	61	55	55	76	67	65	79	70	69	74	64	63
Non-Guava Nectar Buyers																		
Single Strength	40	20	0	41	18	0	42	25	0	55	36	0	57	36	0	50	30	0
Dairy Cartons	40	0	0	35	18	0	42	8	0	55	27	0	54	36	0	48	24	0
Frozen	40	0	0	24	6	0	17	0	0	64	32	0	50	25	0	43	18	0
All Respondents																		
Single Strength	75	58	54	71	58	50	80	71	62	84	73	61	90	86	82	85	78	71
Dairy Cartons	75	54	54	71	58	48	78	61	59	83	70	61	86	79	76	83	72	68
Frozen	50	29	29	48	28	27	52	44	44	74	61	54	77	66	63	70	58	55

less than one year. The percentage who had purchased guava nectar in dairy cartons increased from 48 percent for residents of 1 to 2 years to 59 percent for 3 to 5 year residents and 76 percent for respondents born in Hawaii.

Purchases of frozen guava nectar base increased from 27 percent for 1 to 2 year residents, 44 percent for 3 to 5 year residents, 54 percent for residents of 6 years, and over to 63 percent for those born in Hawaii.

Almost without exception, the increases in purchases were associated with increases in knowledge of availability and familiarity with taste of guava nectars. The data clearly reflect the importance of market development through exposure to the product and indicate the possibilities of increasing sales both in Hawaii and in export markets through effective market development.

CONSUMPTION AND INCOME

Income effect on familiarity, consumption and purchases of guava nectar, with some exceptions, did not appear to be significant (Table 2). There were, however, indications of a few minor relationships between income and consumption. Familiarity and consumption of single strength guava nectar were higher for the lowest and highest income groups. With minor exceptions, familiarity, purchases, and consumption of guava nectar in dairy cartons were highest among middle income groups and lowest in the highest income group.

Familiarity and consumption of frozen guava nectar base appeared to increase significantly in relation to income, with familiarity increasing from 65 percent for the lowest income group to 80 percent for the highest income group and consumption increasing from 49 percent for the lowest income group to 74 percent for the highest income group. Only 47 percent in the lowest income group as compared to 65 percent in the second highest income group and 58 percent in the highest income group had ever purchased frozen guava nectar base.

Another interpretation of the findings that may be of use in market development is that the order of preference for low income groups in form of guava nectar purchased was single strength, first; dairy cartons, second; and frozen nectar base, third. Middle income groups preferred to purchase guava nectar in dairy cartons, followed by single strength, and with least preference for the frozen product. First preference in the highest income groups was for single strength, followed by frozen, and with least preference for guava nectar in dairy cartons.

CONSUMPTION AND ETHNIC ORIGIN

The survey data indicated different patterns of familiarity, consumption, and purchases of guava nectars by ethnic groups (Table 3). Whereas differences do exist, it may be inferred that they are due largely to length of residence in Hawaii rather than to fundamental differences in preference by ethnic groups.

Table 2. Percentage of Honolulu Households Familiar With, Had Tried, Had Purchased Guava Nectar, By Income Group

Income Group	Familiar	Tried	Bought	Familiar	Tried	Bought	Familiar	Tried	Bought
		(Percent)			(Percent)			(Percent)	
Under $10,000	91	79	71	80	71	66	65	49	47
$10,000 - 14,999	81	76	73	86	75	73	70	54	48
$15,000 - 19,999	81	71	67	89	78	76	65	53	51
$20,000 - 24,999	86	84	78	84	71	65	75	67	65
$25,000 - Over	91	84	80	80	57	53	80	74	58
All Income Groups	86	78	73	84	71	67	71	52	50

Table 3. Percentage of Honolulu Households Familiar With, Had Tried, Had Purchased Guava Nectar, By Ethnic Group

Ethnic Group	Single Strength			Dairy Cartons			Frozen		
	Familiar	Tried	Bought	Familiar	Tried	Bought	Familiar	Tried	Bought
	(Percent)			(Percent)			(Percent)		
Caucasian	78	69	60	79	65	60	65	53	48
Chinese	90	85	83	88	75	73	76	68	63
Japanese	92	86	82	90	83	78	82	72	58
Filipino	73	67	67	71	67	63	61	54	54
Hawaiian	94	88	85	88	78	75	63	53	47
Other (mixed and minority)	93	91	82	86	78	70	69	49	49

Familiarity, consumption, and purchases of single strength guava nectar in both cans and dairy cartons was highest for respondents of Chinese, Japanese, Hawaiian, and mixed ethnic origin. Most of the members of these groups were born in Hawaii or had resided in Hawaii for many years and would be expected to rank high as guava consumers for these reasons. Caucasians and Filipinos ranked considerably lower in familiarity, consumption, and purchase of single strength guava nectar in cans and in dairy cartons. A substantial percentage of both groups are recent immigrants and would be expected to be less familiar with and to consume less guava nectar, for this reason.

Familiarity and purchases of frozen guava nectar base were less related to ethnic origin than was true for single strength in cans and in dairy cartons. Consumption of frozen nectar base was highest for Japanese and lowest for Hawaiians.

FREQUENCY OF CONSUMPTION OF JUICES AND NECTARS

Fifty percent of all respondents in the survey indicated that orange juice was consumed most frequently, followed by guava nectar, 23 percent, and passion-orange drink, 10 percent (Table 4). No other juice was indicated to be consumed most frequently by more than 2 percent of the respondents.

Of only those households which consumed guava nectar, 47 percent indicated that they consumed orange juice most frequently and 28 percent consumed guava nectar more frequently than any other juice.

Sixty-four percent of the householders which did not consume guava nectar indicated that they consumed orange juice most frequently, followed by passion-orange, 8 percent; pineapple, 6 percent; and grape and tomato, 4 percent each.

The data thus indicate that the consumption of guava nectar is most competitive with orange juice. When households became frequent guava consumers, there was a substantial reduction in the frequency of consumption of orange juice. Guava consumption was also offset by less frequent consumption of certain minor flavors, such as pineapple, grape, and tomato. For non-guava consumers there was an accompanying, probably coincidental, increase in the frequency of passion-orange drink consumption.

FREQUENCY OF PURCHASE OF GUAVA NECTARS

Guava nectar was purchased frequently, once or twice a week, by 40 percent of the respondents who bought it (Table 5). It was purchased only once or twice a month by 26 percent and rarely by 34 percent. Thus, guava nectar seems to be accepted in the market more on an occasional basis than as a standard item in the shopping basket.

Table 4. Juices and Nectars Consumed Most Frequently by Honolulu Households

Juice or Nectar	All Respondents	Guava Nectar Users	Non-Guava Nectar Users
	(Percent)	(Percent)	(Percent)
Orange Juice	50	47	64
Guava Nectar	23	28	0
Passion-Orange Drink	10	10	8
Grape Juice	2	2	4
Grapefruit Juice	2	2	2
Passion Fruit Juice	1	2	0
Pineapple Juice	2	1	6
Lemonade	1	1	1
Tomato Juice	1	0	4
Papaya Nectar	1	1	0
Other Juices	7	6	11

Table 5. Frequency of Guava Nectar Purchase, By Length of Residence, Ethnic Group, and Income Group

Category	Frequency of Purchase		
	Once or Twice a Week	Once or Twice a Month	Rarely
	(Percent)	(Percent)	(Percent)
Length of Residence			
Less than 1 year	48	26	26
1 - 2 years	33	16	51
3 - 5 years	31	31	38
6 years or more	43	24	33
Born in Hawaii	41	27	32
All Groups	40	26	34
Ethnic Group			
Caucasian	40	25	35
Chinese	30	30	40
Japanese	39	27	34
Filipino	50	14	36
Hawaiian	42	26	32
Others	35	35	30
Mixed	49	27	24
All Ethnic Groups	40	26	34
Income Group			
Less than $5,000	40	24	36
$5,000 - 9,999	39	31	30
$10,000 - 14,999	38	25	37
$15,000 - 19,999	47	25	28
$20,000 - 24,999	46	30	24
$25,000 or more	38	31	31
All Income Groups	40	26	34

The data indicate a rather interesting pattern with respect to length of residence. The most frequent purchasers were residents of less than 1 year. Frequency of purchase then declined sharply during the second year of residence and declined slightly further for 3 to 5 year residents. Frequency increased again for sixth year residents and for those born in Hawaii. Based on these data, it might be assumed that a substantial percentage of new residents, 48 percent, who try guava nectar discontinue purchasing after becoming familiar with the product for reasons indicated elsewhere in this report.

Ethnicity did not appear to have a significant effect on frequency of guava nectar purchases, except for the Filipino and mixed groups, which indicated a considerably higher percentage of frequent purchases than did the other groups.

Income appeared to have only a minor effect on frequency of purchase, which was somewhat higher for income groups between $15,000 and $24,999 than for other groups, although these differences would not be expected to be statistically significant.

FORMS OF JUICE OR TYPE OF CONTAINER BOUGHT BY GUAVA NECTAR AND NON-GUAVA NECTAR CONSUMERS

Forms of various juices bought by guava nectar and non-guava nectar consumers are shown in Table 6. The most widely used form of all juices purchased by Honolulu households was frozen concentrate or frozen nectar base, with 43 percent buying juice in that form. Guava nectar users tended to buy somewhat less of various types of juices in the frozen form than non-guava users. Twenty-eight percent of guava nectar users bought primarily canned or single-strength juice or nectar. Juice in dairy cartons was purchased most frequently by 20 percent of guava nectar users but by only 8 percent of non-guava users.

These findings may have significance in contemplating the development of the U.S. Mainland market for guava nectars. With Mainland consumers being non-guava consumers, purchases of juices and nectars in the frozen form would be expected to be more important and purchases in dairy cartons less important than in Hawaii. This possibility should be considered in developing a strategy for Mainland market development for guava nectars.

PURCHASES OF GUAVA NECTAR BY FORM OF PRODUCT AND SIZE OF CONTAINER

The relative importance of each form of guava nectar purchased differed significantly from that of all juices combined. Forty percent of guava nectar consumers purchased the product in dairy cartons. Thirty-four percent purchased single strength in cans and only 27 percent purchased frozen nectar base (Table 7). Most purchases in dairy cartons, 78 percent, were in the half-gallon size and the remainder in one-quart cartons. The majority of single strength purchases were in larger size units, with 59 percent indicating 46-ounce cans and 41 percent, 12-ounce cans.

Table 6. Form of Juice or Type of Container Usually Bought by Guava Nectar and Non-Guava Nectar Consumers

Form of Juice or Type of Container	All Juices, Non-Guava Nectar Users	All Juices, Guava Nectar Users	All Juices, All Users
	(Percent)	(Percent)	(Percent)
Frozen	47	42	43
Dairy Carton	8	20	18
Canned	27	28	28
Bottle	8	6	6
Other Forms	10	4	5

Table 7. Comparative Purchases of Guava Nectar by Form of Product and Size of Container as Related to Number of Persons in Household

Number of Persons in Household	FORM OF PRODUCT AND SIZE OF CONTAINER								
	Frozen Nectar Base			Dairy Carton			Single Strength Can		
	6 oz.	12 oz.	Total	1 quart	½ gallon	Total	12 oz.	46 oz.	Total
	(Percent)			(Percent)			(Percent)		
1	20	3	23	20	30	50	10	17	27
2	18	11	29	14	26	40	17	15	32
3	21	9	30	5	27	32	16	23	38
4	13	14	26	10	33	42	13	19	32
5	12	15	27	3	39	42	9	21	30
6 or more	8	13	22	7	33	40	15	23	38
All Households	15	12	27	9	31	40	14	20	34
Proportional Purchases, Container size by Product	56	44	100	22	78	100	41	59	100

Purchasers of frozen nectar base tended to prefer smaller units, with 56 percent indicating 6-ounce cans and 44 percent, 12-ounce cans.

Size of household did not appear to have a significant effect on form of guava nectar purchased but a relationship was indicated between size of household and size of containers. With some exceptions, smaller households tended to buy more frozen guava nectar base in 6-ounce cans and larger households tended to buy more in 12-ounce cans. Smaller households also tended to buy more guava nectar in one-quart dairy cartons and larger households bought proportionally more in the half-gallon size. There appeared to be no significant relationship between size of household and size of container for purchases of single strength nectar.

CONSUMPTION OF JUICES AND OTHER BEVERAGES BY OCCASION

Whereas 49 percent of the respondents consumed orange juice at breakfast time, only 10 percent consumed guava nectar on that occasion (Table 8). Guava nectar was the leading beverage consumed with snacks, with 25 percent consuming the product for that purpose, followed by orange juice and other juices with 22 percent each. Less than 8 percent consumed guava nectar at lunch, parties or picnics and only 7 percent consumed it at dinner time.

USERS OF GUAVA NECTAR

Table 9 indicates the relative importance of various uses of guava nectar other than as a beverage by itself. The most important use other than as a pure nectar was as a blend with other juices, which was reported by 16 percent of the guava nectar users. The next most important use was as an ingredient in pies and cakes. Uses of guava nectar for homemade jams, jellies, and sherbet were minor. Sixty-six percent used it as a pure beverage only.

FAVORABLE AND UNFAVORABLE CHARACTERISTICS OF GUAVA NECTARS

Favorable and unfavorable opinions on guava nectar as reported by consumers are shown in Tables 10 and 11. Seventy-five percent of guava nectar consumers liked the flavor, 8 percent considered it nutritious and 6 percent believed it was high in Vitamin C.

With respect to unfavorable characteristics, 71 percent had no complaints, but 8 percent thought it was too gritty and 7 percent thought it was too sweet. Only 4 percent thought the price was too high. As related to undesirable characteristics reported by users, it is quite conceivable that many non-users of guava nectar do not purchase it because they consider it too gritty and too sweet.

Table 8. Percentage of Households Using Various Beverages for Specified Occasions

Beverage	Breakfast	Lunch	Dinner	Snacks	Parties	Picnics
	(Percent)	(Percent)	(Percent)	(Percent)	(Percent)	(Percent)
Guava Nectar	10	8	7	25	8	8
Orange Juice	49	11	10	22	11	9
Fruit Punch	15	3	2	5	15	10
Other Juices	15	12	10	22	10	11
Milk	20	28	42	17	2	1
Coffee	16	7	11	5	4	1
Tea	2	8	17	4	2	2
Soda	-	7	3	13	21	39
Beer	- [a/]	- [a/]	1	2	7	5
Other	2	3	13	3	17	3

[a/] 0.2%

Table 9. Uses of Guava Nectar for Purposes Other Than as a Beverage by Itself

Use	Consumer Response
	(Percent)[a/]
As a blend with other juices	16
As an ingredient in pies and cakes	8
Jams and Jellies	6
Sherbet	2
Other Uses	5
As pure beverage, only	66

[a/] Total exceeds 100 since some respondents indicated more than one use.

Table 10. Favorable Characteristics of Guava Nectar as Reported by Consuming Respondents

Characteristics	Consumer Response
	(Percent)[a/]
High in Vitamin C	6
Nutritious	8
Flavor	75
Color	1
Aroma	2
Cheap	1
Others	14

a/ The total of percentages exceeds 100 because some respondents indicated more than one characteristic.

Table 11. Unfavorable Characteristics of Guava Nectar as Reported by Consuming Respondents

Characteristics	Consumer Response
	(Percent)[a/]
Low in Vitamin C	b/
Low in Nutrition	b/
Too Sweet	7
Too Tart	2
Too Gritty	8
Color	b/
Expensive	4
Others	10
No Complaints	71

a/ The total of percentages exceeds 100 because some respondents indicated more than one characteristic.

b/ Less than one-half of one percent.

CONSUMER OPINIONS ON PRICE OF GUAVA NECTAR

Table 12 indicates consumer opinions with respect to prices of guava nectar in relation to other juices. No opinion on price was expressed by 35 percent of the respondents, which seems reasonable since the summary includes those who have never bought guava and those who rarely buy it. A slightly lower proportion, 28 percent, thought the price of guava was about the same as prices of other juices. Fourteen percent thought the price was reasonable but 17 percent thought it was expensive in relation to prices of other juices. Only 7 percent thought it was cheap. There appears to be a definite relationship between frequency of purchase and the opinion that the price of guava nectar is reasonable in relation to other juices. Also, there is some positive relationship between frequency of purchase and the opinion that guava is cheap.

Consumers were also asked what effect a 10 percent decrease in the price of guava nectar would have on their purchases (Table 13). Forty-nine percent of all respondents indicated that they would buy more guava nectar if the price were reduced 10 cents per can or carton but 51 percent would buy the same amount with or without the price decrease. Respondents indicated that they would be less responsive to a 10-cent price increase and only 37 percent would buy less and 63 percent would buy the same amount.

There appeared to be some relationship between response to price decrease and frequency of purchase, with only 37 percent of those who purchased rarely indicating that they would buy more in response to a 10 percent decrease in price. Twice-a-month purchases were the most responsive to a hypothetical price increase with 59 percent indicating that they would buy more. Although there was not a consistent relationship between frequency of purchase and a 10-cent increase in price, twice-a-month purchases were again the most responsive and 47 percent indicated that they would buy less.

Response to a 10-cent price reduction increased in relation to length of residence, except for residents of less than one year who were the most responsive to a price decrease, with 68 percent indicating they would buy more. Only 41 percent of residents of 1 to 2 and 3 to 5 years indicated that they would buy more.

Income appeared to have little effect on response to price changes except for the less than $5,000 income group in relation to all other income groups. Only 33 percent of respondents with incomes less than $5,000 indicated that they would buy more guava nectar in response to a 10-cent decrease as compared to 50 to 59 percent for all other income groups. Also, respondents in the lowest income group indicated less sensitivity to a hypothetical price increase, with only 25 percent indicating that they would buy less and 75 percent indicating that they would buy the same amount in response to a 10-cent increase in price per unit.

Table 12. Opinions on Price of Guava Nectar as Compared to Other Juices, by Frequency of Purchase

Frequency of Purchase	Opinion on Price				
	Reasonable	Cheap	About the Same	Expensive	No Opinion
Twice a week or more	22	8	27	16	28
Once a week	17	9	30	19	25
Twice a month	12	8	27	23	31
Once a month	12	2	34	12	39
Rarely	10	6	23	16	46
All groups	14	7	28	17	35

Table 13. Response to Hypothetical Change in the Price of Guava Nectar by Frequency of Purchase, Length of Residence and Income

Category	10¢ Price Decrease		10¢ Price Increase	
	Buy More	Buy Same Amount	Buy More	Buy Same Amount
	(Percent)		(Percent)	
Frequency of Purchase				
Twice a week or more	55	45	30	70
Once a week or more	58	42	41	59
Twice a month	59	41	47	53
Once a month	49	51	32	68
Rarely	37	63	35	65
All Respondents	49	51	37	63
Length of Residence				
Less than one year	68	32	53	47
1 - 2 years	41	59	27	73
3 - 5 years	41	59	25	76
6 years or more	49	51	37	63
Born in Hawaii	50	50	38	62
All Respondents	49	51	37	63
Income Group				
Less than $5,000	33	67	25	75
$5,000 9,999	57	43	39	61
$10,000 - 14,999	50	50	39	61
$15,000 - 19,999	52	48	37	63
$20,000 - 24,999	50	50	30	70
$25,000 or more	51	49	39	61
All Income Groups	49	51	37	63

SUMMARY AND CONCLUSIONS

Summary

A rapid increase in guava production concurrent with a decline in total quantity processed has created a situation where a better understanding of the nature and extent of the market for guava products is imperative. The primary objective of this study is to gain a better understanding of characteristics of consumer demand for guava products in Honolulu as a guide to market development.

A random sample of 650 households was selected for telephone interview in metropolitan Honolulu to obtain information on consumer preferences for guava products as related to demographic characteristics. A total of 616 usable questionnaires were computerized and the appropriate findings are analyzed in this report.

Single-strength guava nectar in cans was the best known form of guava nectar in metropolitan Honolulu. Eighty-five percent of the respondents were familiar with this product and 71 percent had bought it. Eighty-three percent were familiar with guava nectar in dairy cartons and 68 percent had purchased it. Only 70 percent of the respondents were familiar with frozen guava nectar base and only 55 percent had bought it.

Familiarity, consumption, and purchases of guava nectar increased in relation to the number of years respondents had lived in Hawaii. The percentage who had purchased single-strength guava nectar in cans increased from 50 percent for those who had resided in Hawaii 1 to 2 years to 82 percent for those who were born in Hawaii. The respective figures for guava nectar in dairy cartons ranged from 48 percent for 1 to 2 year residents to 76 percent for respondents born in Hawaii. The relationship between guava nectar purchases and length of residence was the most dramatic for frozen nectar base. Only 27 percent of 1 to 2 year residents, but 63 percent of those born in Hawaii had purchased this form of guava nectar.

The percentage of respondents purchasing single strength guava nectar in cans and frozen nectar base was higher in most instances for the higher income groups. The percentage purchasing guava nectar in dairy cartons was highest for the low-middle income groups and lowest for the highest income groups.

As to preferences by form of product, there seemed to be some relationship between guava nectar purchases and ethnic groups, but these differences were probably due primarily to the associated length of residence. The percentage purchasing single strength and dairy cartons was highest for Chinese, Hawaiian, and Japanese residents, most of whom were born in Hawaii, and lowest for Caucasians and Filipinos, many of whom were recent immigrants. Purchases of frozen guava nectar base showed a somewhat different pattern and were highest for Japanese and lowest for Hawaiians.

The most frequently consumed juice in metropolitan Honolulu was orange, which was indicated by 50 percent of all respondents. Guava nectar was consumed most frequently by 23 percent and orange passion drink by 10 percent.

Sixty-four percent of non-guava nectar users consumed orange juice most frequently, implying substitution between guava nectar and orange juice.

The most regularly purchased form of all juices and nectars was frozen concentrate (or frozen nectar base) as indicated by 43 percent of all respondents; followed by single strength canned, 28 percent; dairy cartons, 18 percent; and bottles, 6 percent. For guava nectar, the pattern was different. Thirty-seven percent purchased most regularly in dairy cartons, 35 percent single strength in cans, and only 28 percent in the form of frozen guava nectar base.

The primary use of guava nectar was between meals, with 25 percent of consumers indicating this occasion. Only 10 percent consumed guava juice at breakfast time as compared to 49 percent for orange juice. Sixty-six percent used guava nectar as a pure drink only, but 16 percent used it as a blend with other juices.

Guava nectar was purchased frequently by 40 percent of the respondents, infrequently by 26 percent and rarely by 34 percent.

Consumers bought guava nectar primarily because of its flavor, which was indicated by 75 percent. Seventy-one percent had no complaints about guava nectar, but 8 percent considered it too gritty and 7 percent thought it was too sweet.

Seventeen percent of the respondents thought guava nectar was expensive, but 14 percent thought the price was reasonable and 7 percent thought it was cheap in relation to other juices. There was a relationship between frequency of purchase and the opinion that the juice was reasonable. The majority of respondents indicated they would not be responsive to a 10 percent per unit change in price. Fifty-one percent would buy the same amount with a 10 percent price decrease and 63 percent would buy the same amount with a 10 percent price increase.

Conclusions

Results of the study of characteristics of consumer demand for guava nectar in the comparatively well-developed market of Honolulu provide valuable information with respect to developing the U.S. Mainland market for the product. Guava nectar is a minor juice flavor, even in a developed market, and only 10 percent of the respondents indicated using it for breakfast as compared to 49 percent for orange juice. New residents tend to buy guava nectar to find out what it is like but many do not become repeat buyers. The percentage buying then becomes lowest for 1 to 2 year residents and gradually increases in relation to length of residence. The percentage who become repeat buyers after trying the product on the U.S. Mainland might be expected to be less than in Honolulu because of the higher price of guava nectar and the lower prices of many other flavors of juices. Also, mainland consumers might be expected to find the grittiness and large quantity of sugar added more objectionable than in Honolulu.

APPENDIX A

UNIVERSITY OF HAWAII
Department of Agricultural and Resource Economics

Interview No._____

CONSUMER SURVEY FOR GUAVA NECTAR

Interviewer:_____Page:_____Telephone_____

Hello, I am calling from the University of Hawaii. We are doing a study of consumer preference for guava nectar on Oahu. May I talk to the person who does most of the shopping in your household? (If not available, terminate) Here are the questions that I would like to ask:

1. What juice or nectar do you use most frequently in your household?

____a. Orange
____b. Grape
____c. Grapefruit
____d. Guava
____e. Lemonade
____f. Papaya
____g. Passion fruit
____h. Passion-orange
____i. Pineapple
____j. Tomato
____k. Other (Specify:_____)
____l. None

2. In what form do you usually buy juices or nectars?

____a. Frozen
____b. Dairy carton
____c. Canned
____d. Bottle
____e. Other (Specify:_____)

3. What is the next most common juice or nectar used in your household?

____a. Orange
____b. Grape
____c. Grapefruit
____d. Guava
____e. Lemonade
____f. Papaya
____g. Passion fruit
____h. Passion-orange
____i. Pineapple
____j. Tomato
____k. Other (Specify:_____)
____l. None

4. What juices or beverages does your household generally use for:

a. Breakfast:_____
b. Lunch:_____
c. Dinner:_____
d. Snacks:_____
e. Parties:_____
f. Picnics:_____

Consumer Survey for Guava Nectar (Continued)

5. Are you familiar with any of the following guava nectar products:

a. Frozen guava nectar	____Yes	____No
b. Guava nectar in dairy cartons	____Yes	____No
c. Guava nectar in cans ready to use	____Yes	____No

If all the answers are "No," go to Question 21.

6. Have you ever tried:

a. Frozen guava nectar	____Yes	____No
b. Guava nectar in dairy cartons	____Yes	____No
c. Guava nectar in cans ready to use	____Yes	____No

7. Have you ever bought:

a. Frozen guava nectar	____Yes	____No
b. Guava nectar in dairy cartons	____Yes	____No
c. Guava nectar in cans ready to use	____Yes	____No

8. Please indicate the form of guava nectar being consumed most in your household:

____a. Frozen guava nectar
____b. Guava nectar in dairy cartons
____c. Guava nectar in cans ready to use

9. What do you like about guava nectar? (If several answers, which two are most important?)

____a. High in vitamin C
____b. Nutritious
____c. Flavor
____d. Aroma
____e. Color
____f. Cheap
____g. Other (Specify:_____)

10. Is there anything you don't like about guava nectar?

____a. Low in vitamin C
____b. Not nutritious
____c. Too sweet
____d. Too tart
____e. Too gritty
____f. Color
____g. Expensive
____h. Other (Specify:_____)
____i. None

11. Which form of guava nectar do you like best?

____a. Frozen guava nectar
____b. Guava nectar in dairy cartons
____c. Guava nectar in cans ready to use

Consumer Survey for Guava Nectar (Continued)

12. How often do you buy guava nectar? (any form)

____a. Twice a week or more
____b. Once a week
____c. Twice a month
____d. Once a month
____e. Rarely or infrequently

13. How much guava nectar do you buy each time? (No. of cans or cartons)

Frozen (cans)	Dairy Cartons	Canned
____small (6-oz.)	____1 quart	____small (12-oz.)
____large (12-oz.)	____2 qts. (½ gal.)	____large (46-oz.)

14. Compared to prices of other fruit juices, what is your opinion of the price of guava nectar?

____a. Reasonable
____b. Cheap
____c. About the same
____d. Expensive
____e. Don't know

15. If the price of guava nectar decreased by 10¢, would you buy:

____a. More guava nectar
____b. The same amount of guava nectar

16. If the price of guava nectar increased by 10¢, would you buy:

____a. Less guava nectar
____b. The same amount of guava nectar

17. How many persons in your household are 15 or older? ____Persons
How many persons are under 15 years old? ____Persons

18. a. Of those 15 or older, how many of them drink guava nectar?
____Persons
b. Of those under 15 years old, how many drink guava nectar?
____Persons

19. When do you usually serve guava nectar or drink?

____a. Breakfast
____b. Lunch
____c. Dinner
____d. Snacks
____e. Parties
____f. Picnics

20. Besides using guava nectar as a straight drink, do you use it for any other purposes?

____a. Yes. If "Yes" what?
____b. Blended with other juices
____c. Sherbet
____d. Jams and jellies
____e. No.
____f. Flavoring ingredients for pies, cakes, and other desserts
____g. Other (Specify: _____)

Consumer Survey for Guava Nectar (Continued)

Demographic Data

21. To which ethnic group do you belong?

____a. Caucasian
____b. Chinese
____c. Japanese
____d. Filipino
____e. Hawaiian
____f. Other (Specify:_____)
____g. Mixed:_____

22. How long have you lived in Hawaii?

____a. Born in Hawaii
____b. Less than one year
____c. 1-2 years
____d. 3-5 years
____e. 6 years or more

23. How much schooling did you complete?

____a. Eighth grade or less
____b. Some high school
____c. High school graduate
____d. Some college (1-3 years), trade or or business school after high school
____e. College graduate

24. What is the occupation of the head of the household?_____

_____

25. Approximately, what is your total yearly household income?

____a. Below $5,000
____b. $5,000 to $9,999
____c. $10,000 to $14,999
____d. $15,000 to $19,999
____e. $20,000 to $24,999
____f. $25,000 or more

Thank you very much for your cooperation and assistance in conducting our study.

APPENDIX B

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